Integrating Commercial Applications With The Decentralized Hospital Computer Program At The Philadelphia Veterans Affairs Medical Center

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The Veterans Health Administration (VHA) committed to building an electronic healthcare architecture, in 1982, called the Decentralized Hospital Computer Program (DHCP). The focus of this program was the implementation of software modules that were easily integrated into a complete hospital information system deployed at all Veterans Affairs Medical Centers nationwide.

Today, the Hybrid Open Systems Technology (HOST) Program allows VHA to expand upon the modules of DHCP. The HOST concept requires the use of standards-based communication and application protocols (i.e. HL7, MUMPS, DICOM) to integrate commercial technologies with the DHCP environment. The ultimate objective of this open network approach is to lower the cost of integrating commercial technologies while enhancing the functionality of the DHCP system.

In 1994 the Philadelphia HOST Project was implemented as a pilot to combine seven commercial off-the-shelf (COTS) clinical and administrative applications with DHCP through the use of a universal translator to achieve seamless integration between systems. The successful implementation of this system will ease the addition of future commercial applications and allow deployment to Medical Centers nationwide.

To achieve the highest form and most cost effective integration possible, it was decided that an interface engine is required. The Message Routing and Translation System (MRTS), translates and directs dissimilar messages between DHCP and commercial applications enabling communication between systems.

The MRTS hardware is a Digital Alpha 2000 running the Digital UNIX operating system and the DataGate integration software by Software Technologies Corporation (STC). The use of a MRTS creates a flexible systems environment allowing unlimited links with any number of commercial applications, regardless of the operating system or platform.

An integrated system is one which supports the exchange of information between DHCP and commercial applications, assuring that components of the automated patient record are not isolated within stand-alone applications.

In order to enhance the accessibility, amount and quality of patient information to the health care provider it was necessary to integrate the four existing stand-alone applications used at Philadelphia with DHCP. The existing four applications are an anatomic pathology system named CoPath by Collaborative Medical Systems, this Micronetics MUMPS system automates ICD-9 and SNOMED coding of test results; a blood bank information management system named HemoCare by Mediware Information Systems, Inc., this Unix based system controls inventory, processes test data and maintains and manages patient and donor records; an automated nurse staffing package called ANSOS by Atworks, Corp., this DOS based system increases the utilization of staff resources; and an intensive care unit (ICU) monitoring system named CareVue 9000 by Hewlett-Packard, this Unix based system is used in the Medical and Surgical ICUs, the Emergency Room and Recovery Room.

To further enhance functionality, three new applications are also planned for integration with DHCP. The three new applications are an anesthesia data management system named LifeLog by Modular Instruments Incorporated, this OS/2 based system provides on-line clinical assistance in the OR; a voice activated patient reporting package named VoiceMED by Kurzweil Applied Intelligence, Inc., this DOS based system will first be implemented in Neurology to provide immediate voice generated, automatic transcriptions of reports, and a radiology image management system named IMPAX by AGFA, this Unix based system will store and transmit images digitally between the Medical and Surgical ICUs and Radiology.

The Veterans Health Administration (VHA) operates one of the largest centrally-directed and most comprehensive health care systems in the United States. The integration of commercial applications with DHCP will form an unparalleled virtual healthcare organization resulting in state-of-the-art diagnostic instruments, improved efficiency, improved risk management and enhanced quality of care to the patient.

0195-4210/95/$5.00